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4 **ADDENDUM October 19, 2001**
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6 **FERC Project 184**
7 **Relicensing Environmental Study Requests**
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12 **Originally Prepared for El Dorado Irrigation District**
13 **September 20, 2001**
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43 The following work program addendum has been prepared in response to agency comments and
44 subsequent agency consultation regarding the Relicensing Environmental Study Request
45 Prepared for EID on September 20, 2001 in regard to the relicensing of Project 184.

**EIP FINAL WORK PROGRAM REVISIONS
FOR
TERRESTRIAL WILDLIFE AND BOTANICAL RESOURCES, VISUAL RESOURCES
AND RECREATION**

Introduction

The following revisions are made to the Work Program submitted to the El Dorado Irrigation District by EIP Associates on 20 September 2001. The revisions reflect consultations with the U.S. Forest Service and California Department of Fish and Game held on 18 October 2001. The revisions also reflect EID and agency understandings of the status of specific environmental studies as of 18 October.

Terrestrial Wildlife

Special-Status Species

Yosemite Toad

The table listing special-status species is revised to reflect that EID will complete field surveys for the Yosemite toad.

Mule Deer

The special-status species table is revised to indicate that Trailmasters will be operated at *four* canal crossings. In addition, the mule deer narrative is expanded by adding the following objectives:

Objective 4: To evaluate the historical mortality of mule deer in the El Dorado Canal.

Objective 5: To monitor and document future mule deer mortality in the El Dorado Canal.

The mule deer narrative is also expanded to include a methodology and schedule section for objectives 4 and 5 as follows:

Methodology and Schedule (Objectives 4 and 5)

EIP, working with EID, will request historical deer mortality data related to the operation of the El Dorado Canal from PG&E (or from EID's own records). These data will be provided to the U.S. Forest Service and the California Department of Fish and Game by June 2002.

EIP will also develop, in consultation with the same resource agencies, a monitoring program to record future wildlife mortality in the El Dorado Canal. The plan will

identify a process by which improvements to the canal's wildlife exclusion facilities can be made, should wildlife mortality continue to be a significant management problem.

Nine Bat Species

Pursuant to discussions with the U.S. Forest Service, Department of Fish and Game and Rick Lind of EN2Resources, in charge of implementing environmental mitigation with regard to tunnel construction, all necessary bat surveys and reports have been completed, including surveys on the portion of the tunnel scheduled to be abandoned. No further surveys are required.

Mallard and Other Waterfowl Species

The two sections of the special-status species table are revised to indicate that nesting surveys for the mallard and other waterfowl taxa will be completed at Echo and Silver lakes during the spring and summer of 2002. A narrative statement is added to the Work Program text following the section on the nine bat species that states:

Mallard and Other Waterfowl Species

During the spring and summer nesting and rearing season of 2002, EIP will complete three qualitative surveys for nesting waterfowl at Echo Lake and Silver Lake. The surveys will document the occurrence of nesting species and record the number of nesting birds, offspring observed, and habitat associations. These data will be reported to the resource agencies in the form of a letter report by 30 July 2002.

Great Gray Owl

The special-status species table is revised to indicate that *no* field surveys for the great gray owl will be completed. The narrative remains unchanged.

Wildlife Habitat Impact Assessment

The U.S. Forest Service has requested that an estimate be made of the acreage and type of riverine riparian and meadow habitat removed or created as a result of the development of Project 184. In addition, the Forest Service does not necessarily agree with EID that potentially suitable habitat for the following mammals would not be affected by project activities: wolverine, fisher, pine marten, and Sierra Nevada red fox. Therefore, the Work Program is expanded to add the following language following the narrative:

Wildlife Habitat Impact Assessment

EIP, using existing maps, reservoir bathymetry, and instream flow study data, will estimate the acreage of various wildlife habitats lost or created by the development of Project 184 facilities. The results of this assessment will be provided by letter report to the collaborative participants by 1 July 2002.

EIP, using existing data, will also map potentially suitable habitat within the Project 184 boundaries for the wolverine, fisher, pine marten, and Sierra Nevada red fox. EIP will 185 complete a project impact assessment for these four mammals and present the results in 186 report format to the collaborative participants by 1 September 2002.

187 **Botanical Resources**

188 *Riparian Vegetation*

189 The final paragraph in the Work Program for riparian vegetation is deleted and is replaced with 190 the following language:

191 Riparian habitat classification and measurement was completed by Resource Insights. 192 No additional field work is required.

193 *Noxious Weeds*

194 The Work Program text for noxious weeds is deleted and is replaced with the following 195 language:

196 Surveys for noxious weeds were completed at most locations within the FERC 197 boundaries of Project 184 as part of the botanical surveys. A noxious weed inventory 198 remains to be completed for administrative sites (near project buildings) and along 199 project access roads used by EID. EIP will complete the remaining noxious weed 200 inventory during the spring and summer of 2002. The weed species included on *List A* 201 compiled by El Dorado National Forest will be the focus of the inventory. In the event 202 that *List A* species are located, EIP will prepare, in consultation with the U.S. Forest 203 Service, a weed control and monitoring plan. This work will be completed and 204 distributed to the resource agencies by 1 September 2002.

205 **Visual Resources**

206 Visual Resources

207 The fourth paragraph on page 16 of the work plan is hereby revised as follows:

208 For purposes of this study, the Project study area (Study Area) ~~is assumed to~~ 209 ~~include the viewshed at the following locations identified in Section 7.4 of the~~ 210 ~~February 2000 Application for License, Volume 3, Exhibit E: Lake Aloha, Echo~~ 211 ~~Lake and Echo Lake Conduit outlet, Caples Lake, Silver Lake, and the diversion~~ 212 ~~dam on the South Fork of the American River at Kyburz. includes all Forest~~ 213 ~~Service administered view zones on which any features affected by Project~~

operations are located. Visual quality studies will be performed anywhere in the study area where Forest Service designated Level 1 and 2 viewsheds are visible.

On page 16, the first bullet item under “Work Products” is hereby revised as follows:

- § A report summarizing a) the project area's landscape character in terms of it scenic attractiveness, scenic integrity, absorption-~~capacity~~ capability, seen areas and distance zones, visual sensitivity, and USFS Visual Quality Objectives; b) the visual contrasts between the Project's components and the surrounding landscape from project KOPs; and c) proposed mitigation measures, where appropriate, to reduce this contrast.

On page 16, the second bullet item under “Work Products” is hereby revised as follows:

- § **GIS mapping of key viewsheds, as needed if unavailable from the Forest Service.**

Recreation

The proposed recreational assessment approach should be viewed as being composed of two major but inter-related components.

The first major component is an effort to develop an understanding of the relationship between, among other issues; 1) recreational uses and recreational resource values of project elements as they relate to facilities, streamflows, and reservoir elevations, 2) use levels, user characteristics, and carrying capacities, and 3) resource conditions (facilities, streamflows, and reservoir stages) and carrying capacity. There are many different assessment approaches that can develop these relationships that, among others, include; detailed user questionnaires, controlled flow (and stage) studies, resource condition inventories, and key-resource user and focus group interviews and workgroups.

With one recreation season available within which to develop accurate and defensible information necessary to adequately address all of the remaining information requests, the recreation study approach proposes to develop basic resource value and carrying capacity information through a structured qualitative process. The process will be multi-tiered and include on-site informal interviews with users contacted during the course of field work, structured interviews with identified key-resource users from all the relevant activity-type groups, structured interviews with identified public and private recreational resource managers and providers, formal and structured focus groups organized around all potentially affected activity-types, and on-site recreational use and behavior observations conducted by the consultant.

The categories of information to be derived from field review, user interviews, resource managers and providers, and from the focus groups will be developed through a project design

process that will include agencies, relevant NGOs concerned with recreational resources, and other interested parties concerned with project related recreation. This design process will include such things as developing functional definitions for various assessment parameters such as minimum, optimum, and reasonable recreational resource conditions, a range of carrying capacities related to varying recreational products, and parameters for identifying regional significance or relative activity-type significance, etc. These and other project design elements will be used to identify the types of use and recreational resource condition information to be collected. The results of all field condition reviews, informal user interviews, formal key-resource user interviews, focus group input, and agency input review and decisions will be incorporated into the detailed package of project notes.

The second major component of the study is the development and execution of the demand model that will be designed and organized to relate the information collected in the first component into a demand and visitation estimation tool. The demand model will address each recreation activity-type on each of the separate recreation-hydrologic components (stream reaches and reservoirs). The parameters and coefficients used to convert the resource information into demand model attributes will be undertaken in conjunction with agencies, NGOs, other parties interested in recreational resources, and the focus groups that are involved with this study.

In response to verbal and written comments received on the 9/20/01 "Work Program".

Friends of the River:

- The study will address all recreational activity-types that may be affected by variable reservoir stages, streamflows and project facilities including whitewater boating.
- The R4DM is designed to address impacts of various project operational scenarios on recreational uses, visitation, and demand based on the regional context of the project and the recreational resources affected by the project. As such the basic information necessary to address Cumulative Impacts will be collected as part of the study. We will address ourselves to findings on Cumulative Impacts through the demand model and the conceptual premises for addressing Cumulative Impacts will be developed, in part, through the study design process described above.
- Other issues raised by FOR will be undertaken as a matter of course through the design and execution of the demand model: 1) these issues include preparing hydrographs, 2) calculate "boatable days" for minimum and maximum whitewater boating flows for pre and post project conditions, 3) study scenario that minimize and/or mitigate impacts and address cumulative impacts, 4) determine carrying capacity and forecast demand, 5) use the Oasis model to determine the relationship between streamflows and reservoir stages and, 6) inventory public access to boating reaches including ownership, parking capacity and state of access to the river.

National Park Service:

- 274 ☐ The demand model is designed to determine and estimate the degree of increased or
275 decreased recreational resource values, use visitation, and demand for each activity-type
276 for a range of project alternatives. As such the study will be designed to determine the
277 recreational impacts to the four stream segments found Eligible as National Wild and
278 Scenic Rivers. The parameters, criteria, and thresholds to be used to conclude the degree
279 of condition change that may constitute significant alteration in the recreational values
280 will be developed through the study design process described above.

281
282 US Forest Service:

- 283
284 ☐ We intend to use the vast majority of the recreational use, user, and resource information
285 collected on Project 184 to date. This information, particularly the user questionnaires
286 will be used in presenting user characteristics and activity-types engaged. The existing
287 the recreational resource information will be used to describe the resources and facilities
288 in the project area. The only areas that we intend to advance the information collected to
289 date involves the dynamic relationships between 1) recreation values, visitation, and
290 demand and streamflows and reservoir stages, 2) use levels, user characteristics, and
291 carrying capacities, and 3) resource conditions (facilities, streamflows, and reservoir
292 stages) and carrying capacity. These issues are the focus of the demand model as
293 described in the 9/20/01 document and supplemented above.
- 294
295 ☐ We propose to determine “Project Induced Recreation” with an approach as described in
296 the 9/20/01 document and we intend to develop this in total consultation with the USFS
297 and any other interested parties. Since this is an important conceptual construct for other
298 areas of re-licensing evaluation that EID intends to undertaken, we propose to make this
299 task one of the first to be addressed and accomplished.
- 300
301 ☐ The carrying capacity thresholds for recreation product that are dependent on water-based
302 circumstances (flow and stage) and that are needed for the demand model and for re-
303 licensing consideration, may be too subtle to be dealt with through the ROS. We propose
304 to approach the issues of carrying capacity at a level of detail necessary to address our
305 demand modeling and FERC re-licensing needs in a manner that it can “cross-walk” to
306 the USFS’s ROS needs. We intend to work closely with the USFS during the study
307 design process, described above, to address this concern.
- 308
309 ☐ The USFS as well as other interested parties will be involved at stages of study design
310 and execution.
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312 ☐ Other USFS comments are addressed within the “clarification” discussion above.
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319 **Addendum to Scope of Work**
320 **For a Cultural Resources Study**
321 **Of the Proposed FERC Project 184 Relicensing**
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325 (Add the following on page 34, under **Phase III - Treatment of Eligible And Unevaluated**
326 **Properties**)
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328 Phase III will include an Historic Property Management Plan (HPMP) for eligible and
329 unevaluated sites within the project APE. (Any sites which are evaluated during Phase II and are
330 determined, with SHPO concurrence, to be ineligible for the National and State registers, will
331 require no further management.) The goal of the HPMP will be to outline the procedures for
332 managing significant (and potentially significant) resources through either 1) avoidance and
333 protection, where feasible, 2) measures to minimize the damage to such resources from the
334 effects of Project 184 operations, or 3) mitigation of effects through additional data recovery,
335 archival research, public interpretation, or other appropriate measures.
336

337 The HPMP will be prepared, under direction of EID and in consultation with the FERC
338 Relicensing Collaborative and parties to the Programmatic Agreement, particularly the Forest
339 Service, SHPO, and Indian Tribes. It will include discussions of avoidance and protection
340 measures; site monitoring; procedures for consultation; procedures for addressing of identified
341 effects and for emergency situations; dispute resolution; confidentiality of site locations and
342 information; and procedures for amendment and termination of the HPMP.
343

344
345 **Final Work Program Revisions for Aquatic Resource Studies for Project 184 Relicensing**
346

347 **Prepared by**

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349 **ECORP CONSULTING, INC**
350

351 **4.0 AMPHIBIANS AND AQUATIC REPTILES**
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353 Additions to the original Scope of Work for amphibian monitoring are presented herein. The
354 introductory material has been included with appropriate corrections. Amphibian monitoring will
355 be implemented to: identify areas of potential habitat for foothill yellow-legged frog (FYLF),
356 mountain yellow-legged frog (MYLF), California red-legged frog (CRLF), and Yosemite toad
357 (YT); to determine the presence, location, and distribution of these species; determine the
358 seasonal timing of breeding and larval periods; collect microhabitat utilization information; and
359 assess identified populations relative to changes in the streamflow regime.
360

361 Determining the presence, distribution, and breeding and larval periods of special-status
362 amphibians is necessary to evaluate potential impacts resulting from streamflow modifications
363 (particularly short-term modifications). Monitoring FYLF, MYLF, CRLF, and YT in 2001 and
364 especially 2002 will provide baseline conditions prior to the initial stages of streamflow
365 modifications and will set the basis for the evaluating project alternatives.
366

367 ***Year 2001***
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369 We will review color aerial photography of the project area, focusing on potentially affected
370 areas, to identify areas that provide suitable habitat for special-status amphibian species. Areas
371 of potential habitat will be identified and stratified by target species (especially FYLF, MYLF,
372 CRLF, and YT). Reconnaissance-level field surveys will be conducted to assess and groundtruth
373 general habitat conditions and prioritize in-depth survey locations. Surveys will follow
374 established PG&E and USFS methods and protocols and will involve informal consultation with
375 USFWS, CDFG and USFS. A survey proposal will be developed and submitted to resource
376 agencies for approval/consensus in November of 2000.
377

378 ***Year 2002***
379

380 The agency-approved amphibian survey program will be implemented from May through
381 October. The draft report summarizing survey results, including appropriate graphics, maps and
382 recommendations will be prepared in November/December and submitted to EID and resource
383 agencies for review. For some species, a second year of survey may be required by the agencies.
384 The cost of the actual survey program will be determined following the resource agency approval
385 of a final survey proposal.
386

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389 ***Mountain Yellow-legged Frog***

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391 Surveys will be conducted in the Caples Creek drainage, Silver Fork American River drainage,
392 and headwaters of South Fork American River drainage.
393

394 ***Schedule*** - The habitat assessment will be completed prior to the initial streamflow change. One
395 to two surveys for adults and larvae will be conducted between July and September during the
396 years 1 and 2. If, during the initial survey each year, no sightings are documented, a follow-up
397 survey will be conducted several weeks later. The specific timing of surveys will be determined
398 by climatic conditions during each of the specified years.

399 ***Habitat Assessment Methods*** – Habitat evaluations will be conducted using the same process as
400 described for FYLF, above. The habitat assessment will evaluate the wet meadow habitat or
401 other suitable habitat that is contiguous with or adjacent to the stream corridor within ¼ mile of
402 either stream bank.

403 ***Visual Encounter Surveys*** – Visual encounter surveys will be conducted using a modified
404 approach to the Crump and Scott (1994) methodology, as this methodology lends itself to
405 smaller stream courses and meadow habitats. In perennial pond habitats, visual encounter
406 surveys will be conducted using the methodology developed by Thoms et al. (1997).

407 To maximize the likelihood of detecting change in amphibian habitat and relative abundance
408 estimates and to minimize differences caused by sampling bias, transects will be established at
409 each stream monitoring station, and ponds will be fully surveyed. Transect lengths, search areas,
410 and survey times will be recorded at each station to maintain equal effort between survey events.
411 Transect start and end points will be established with permanent markers, and locations will be
412 recorded with a differentiated (or post-processing capable) GPS unit, where possible.

413 Microhabitat utilization information will be collected at each station for each life stage
414 encountered. Specifically, water depth, water temperature, substrate type, orientation and
415 location in relation to streamflow, and water velocity measurements will be documented. Where
416 possible, MYLF will be photo-documented, with the specific intent of identifying their location
417 relative to the stream channel or water body, and position information will be recorded with a
418 differentiated (or post-processing capable) GPS unit (e.g., Trimble or similar device). All other
419 amphibians and reptiles encountered during the visual encounter surveys will be identified and
420 recorded.

421 ***Yosemite Toad*** 422

423 Surveys will be conducted in the Caples Creek drainage, Silver Fork American River drainage,
424 and headwaters of South Fork American River drainage. In the event that Yosemite toad are not
425 documented after the first year of monitoring, alternate sites (if available) may be substituted, as
426 appropriate.
427

428 ***Schedule*** - The habitat assessment will be completed prior to the initial streamflow change. One
429 to three breeding and larval surveys will be conducted between April and July years 1 and 2. If,
430 during the initial survey, no sightings are documented, a follow-up survey will be conducted two
431 to four weeks later. A third survey may be necessary for those sites where either eggs were

found on the second visit, or where larvae could not be identified on the second visit. The specific timing of surveys will be determined by climatic conditions during each of the specified years.

Habitat Assessment Methods – Habitat evaluations will be conducted using the same process as described for FYLF, above. The habitat assessment will evaluate wet meadow habitat, pools or other suitable habitat that is contiguous with or adjacent to the stream corridor within 1/4 mile of either stream bank.

Visual Encounter Surveys – Visual encounter surveys will be conducted using a modified approach to the Thoms et al. (1997) methodology, as this methodology lends itself to surveys in snowmelt pools and ponds in meadow habitat, where this species is most likely to occur.

To maximize the likelihood of detecting change in amphibian habitat and relative abundance estimates and to minimize differences caused by sampling bias, suitable pool/pond habitat will be surveyed. Search areas and survey times will be recorded at each station to maintain equal effort between survey events. Search areas will be established with permanent markers, and locations will be recorded with a differential (or post-processing capable) GPS unit where possible.

Microhabitat utilization information will be collected at each station for each life stage encountered. Specifically, water depth, water temperature, pH, substrate type, and orientation and location in relation to shoreline, will be documented. Where possible, amphibians will be photo-documented; with the specific intent of identifying their location relative to the stream channel or water body, and position information will be recorded with a differential (or post-processing capable) GPS unit. All other amphibians and reptiles encountered during the visual encounter surveys will be identified and recorded.

Analysis Methods

Based on data collected during this study and other available information, descriptions of the following will be prepared for each species: 1) general physical and biological characteristics of areas identified as potential habitat, 2) specific characteristics of each selected monitoring site, 3) location and distribution of each life stage encountered, 4) timing of breeding and larval periods, and 5) microhabitat conditions measured for each life stage encountered. Maps will be prepared showing the locations of potential habitat, selected monitoring sites, and life stages of each species encountered. Additionally, relative abundance data, as a measured value of number of individuals over time and area surveyed, will be calculated at each site for each life stage (larvae numbers will be estimated). This will facilitate comparisons of relative abundance between sites and between monitoring events.

Field Documentation and Quality Assurance / Quality Control Procedures

Monitoring information will be recorded on standardized field data sheets, which will be reviewed for completeness and accuracy at each station.

Unanticipated modifications to monitoring procedures or analysis methods will be documented and reported to CDFG and U.S. Forest Service (FS). If monitoring results indicate that

modifications to the monitoring methods may be warranted, CDFG and FS input and guidance will be solicited prior to implementing such modifications.

Products

The amphibian monitoring program will generate three products that will be made available both electronically and in hard copy. An annual data report will be compiled and submitted to the CDFG and FS each year that amphibian population surveys are conducted. The report will present the data collected during the course of the year and will summarize these data in relation to amphibian population data collected in prior years of this monitoring program.

The amphibian monitoring data will be used in conjunction with the results of the other resource investigations (fish populations, macroinvertebrates, water temperature, water quality, riparian, geomorphology, etc.) to determine the overall effect of Project flow regimes on the environmental resources of the Project area.

References

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Thoms, C., C.C. Corkran, and D.H. Olson. 1997. Basic Amphibian Survey for Inventory and Monitoring in Lentic Habitats. Pages 35-46 in D.H. Olson, W.P. Leonard, and R.B. Bury, eds. Sampling Amphibians in Lentic Habitats: Methods and Approaches for the Pacific Northwest. Northwest Fauna 4. Society for Northwestern Vertebrate Biology, Olympia, WA.

6.0 IFIM/Temperature Modeling & Water Quality/Hydrology

Amendments are provided herein for the Water Quality and Hydrology tasks only. However, we reiterate that the proposed Scope of Work for all tasks under Section 6.0 have not been fully developed due to the tiered nature of these studies. Although a data review has been completed, additional agency input is required. For the purpose of this Addendum, we provide our best available estimate, given that the final scope cannot be completed until agency review of work products (e.g., IFIM Study) is complete.

Water Quality and Hydrology

(The following paragraph shall be added to the description of Water Quality and Hydrology Studies):

The Water Quality Task scope includes a review of all water quality collection efforts in reservoirs and streams, analysis of water quality conditions, and presentation of all data in tabular form. Included in the analysis is a review of water chemistry and coliform counts. This review will be provided to the State Water Resources Control Board staff with a copy provided to any other collaborative participant requesting the analysis for its review for adequacy prior to completion of field studies. If further data collection is required, a water quality data collection plan will be developed for agency review.

(Although not directly a part of the Special Study requests, EID has committed to the process of developing a hydrologic modeling tool for use in the Collaborative process. The following describes the work program leading to the development of the model).

Hydrologic Model

Phase I - Model Design

- Identify performance measures - Performance measures are the displays produced by analytical tools which allow the applicant and collaborative parties to determine whether one alternative management strategy is better or worse than another. Typically, these items are the reason for the model. The process will reveal the performance measures which should be considered when building the model. The development of the performance measures will give an indication of the parameters necessary for participants to determine if an alternative is better or worse than any other alternative.
- Review available data - Available data will determine the limitations of the model. This step will also identify data gaps that may need to be filled. In reviewing existing data bases, corresponding data gaps will be identified and the need for additional data required to generate the information required by the District and Project 184 collaborative participants will be established.
No additional hydrologic data will be generate during this subtask.
- Create a preliminary schematic of the system to be modeled - Although the schematic will probably change during model construction, preliminary development of the schematic will give us a blueprint of the system to be built. The Disrict will assure that the preliminary model schematic is a realistic representation of Project 184.
- Recommendation for the modeling time step - The time step is dependant upon both the available data and the time step of the external modules.

- Scope of work - The scope of work for model development will be developed from the Phase I report.

- Schedule for model development - The schedule for work will be developed which will contain the completion date and will target intermediate dates for data needs.

Following the completion Phase I, a report will be developed containing the details of the items listed above. The report will provide the guidelines necessary for the construction of the model. Timing for the completion of Phase I will be highly dependant on the ability to schedule meetings with the District, other agencies and the collaborative participants, but assuming reasonable access to the parties, Phase I could be completed in about one month from the start of the project

Phase II - Model Construction

A major part of the Project 184 model construction will be the preparation of the hydrology required to drive the model. In Phase I, WRMI and applicant representatives will identify the data thoroughly review existing hydrologic data and determine what steps must be taken to provide the data necessary to produce the performance measures desired by the District and by the Project 184 collaborative participants. An initial step in Phase II, will be to generate the desired data using statistical methods where necessary. It is anticipated that there will be three major tasks to be completed in Phase II:

- Generation of hydrologic data - develop one or more hydrologic data sets to be used in the Project 184 model. Depending on the performance measures identified in Phase I, the District and its consultants will prepare daily and/or monthly data sets of undetermined length, to drive to operation of the system. All data sets will be prepared using existing data bases where acceptable, supplemented with statistically generated information, if possible, to fill data gaps. All data sets will be provided to collaborative participants requesting it.

Model Construction - Construction will be done based on the Phase I report. The model will be constructed to generate all the outputs required to produce the performance measures identified in Phase 1. The District consultants will accurately describe all Project 184 physical characteristics, operational constraints, operation rules and project objectives. The completion of the model will be dependant on the completion of the data sets needed to drive the operation. A hydrologic data set will be needed to test the model.